Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-30. (Cancelled).

31. (New) A method of extracting a region of interest from a plurality of cross-sectional images of a sliced three-dimensional object, comprising:

specifying an initial region from a first cross-sectional image of the plurality of cross sectional images;

calculating a first value based on pixel values of each pixel inside the initial region;

calculating a second value based on pixel values of each pixel outside the initial region;

selecting, as a first temporary region, a region that is at the same position as the initial region, from a second cross-sectional image corresponding to a second cross section next to a first cross section corresponding to the first cross-sectional image;

obtaining a pixel value of a first pixel near a boundary of the first temporary region;

determining whether the first pixel is inside the region of interest based on the pixel value of the first pixel, the first value, and the second value;

obtaining a pixel value of a second pixel outside the first temporary region and near the first pixel, if the first pixel is determined to be inside the region of interest;

obtaining a pixel value of a third pixel inside the first temporary region and near the first pixel, if the first pixel is determined to be outside the region of interest;

determining whether the second pixel or third pixel is inside the region of interest based on the pixel value of the second pixel or third pixel obtained, the first value, and the second value;

selecting, as a second temporary region, a region that is at the same position as the initial region including all pixels that have been determined to be inside the region of interest in the second cross-sectional image, from a third cross-sectional image corresponding to a third cross section next to the second cross section;

obtaining a pixel value of a fourth pixel near the second temporary region;

calculating a third value based on pixel values of each pixel inside the first temporary region and the initial region;

calculating a fourth value based on pixel values of each pixel outside the first temporary region and the initial region; and

determining whether the fourth pixel is inside the region of interest based on the pixel value of the fourth pixel, the third value, and the fourth value.

32. (New) The method according to claim 31, wherein the first to fourth values are calculated based on density values expressed by the HSV color model, and the pixel values of the first to fourth pixels are density values expressed by the HSV color model.

33. (New) The method according to claim 32, wherein

the first value is a median of H values and S values of pixels inside the initial region;

the second value is a median of H values and S values of pixels outside the initial region;

the third value is a median of H values and S values of both pixels inside the initial region and the first temporary region; and

the fourth value is a median of H values and S values of both pixels outside the initial region and the first temporary region.

34. (New) The method according to claim 33, wherein the determining of whether each of the first to fourth pixels is inside the region of interest comprises:

comparing a first difference between the pixel value of the first or second or third pixel and the first value with a second difference between the pixel value of the first or second or third pixel and the second value, and determining that the first or second or third pixel is inside the region of interest if the first difference is smaller than or equal to the second difference, and determining that the first or second or third pixel is outside the region of interest if the first difference is greater than the second difference; and

comparing a third difference between the pixel value of the fourth pixel and the third value with a fourth difference between the pixel value of the fourth pixel and the fourth value, and determining that the fourth pixel is inside the region of interest if the third difference is smaller than or equal to the fourth difference, and determining that the fourth pixel is outside the region of interest if the third difference is greater than the fourth difference.

35. (New) The method according to claim 31, wherein the plurality of cross-sectional images are full-color images of an organism.

36. (New) The method according to claim 31, wherein the initial region is specified manually.

37. (New) The method according to claim 31, wherein the initial region is extracted automatically through an image processing technology.

38. (New) The method according to claim 31, further comprising selectively storing and displaying pixels that have been determined to be inside the region of interest.

39. (New) The method according to claim 31, wherein the region of interest is three-dimensional.

40. (New) A computer program embodied in a computer readable medium for performing a method of extracting a region of interest from a plurality of cross-sectional images of a sliced three-dimensional object, the method comprising:

specifying an initial region from a first cross-sectional image of the plurality of cross sectional images;

calculating a first value based on pixel values of each pixel inside the initial region;

calculating a second value based on pixel values of each pixel outside the initial region;

selecting, as a first temporary region, a region that is at the same position as the initial region, from a second cross-sectional image corresponding to a second cross section next to a first cross section corresponding to the first cross-sectional image;

obtaining a pixel value of a first pixel near a boundary of the first temporary region;

determining whether the first pixel is inside the region of interest based on the pixel value of the first pixel, the first value, and the second value;

obtaining a pixel value of a second pixel outside the first temporary region and near the first pixel, if the first pixel is determined to be inside the region of interest;

obtaining a pixel value of a third pixel inside the first temporary region and near the first pixel, if the first pixel is determined to be outside the region of interest;

determining whether the second pixel or third pixel is inside the region of interest based on the pixel value of the second pixel or third pixel obtained, the first value, and the second value;

selecting, as a second temporary region, a region that is at the same position as the initial region including all pixels that have been determined to be inside the region of interest in the second cross-sectional image, from a third cross-sectional image corresponding to a third cross section next to the second cross section;

obtaining a pixel value of a fourth pixel near the second temporary region;

calculating a third value based on pixel values of each pixel inside the first temporary region and the initial region;

calculating a fourth value based on pixel values of each pixel outside the first temporary region and the initial region; and

determining whether the fourth pixel is inside the region of interest based on the pixel value of the fourth pixel, the third value, and the fourth value.

41. (New) The computer program embodied in a computer readable medium according to claim 40, wherein the first to fourth values are calculated based on density values expressed by the HSV color model, and the pixel values of the first to fourth pixels are density values expressed by the HSV color model.

42. (New) The computer program embodied in a computer readable medium according to claim 41, wherein

the first value is a median of H values and S values of pixels inside the initial region;

the second value is a median of H values and S values of pixels outside the initial region;

the third value is a median of H values and S values of both pixels inside the initial region and the first temporary region; and

the fourth value is a median of H values and S values of both pixels outside the initial region and the first temporary region.

43. (New) The computer program embodied in a computer readable medium according to claim 42, wherein the determining of whether each of the first to fourth pixels is inside the region of interest comprises:

comparing a first difference between the pixel value of the first or second or third pixel and the first value with a second difference between the pixel value of the first or second or third pixel and the second value, and determining that the first or second or third pixel is inside the region of interest if the first difference is smaller than or equal to the second difference, and determining that the first or second or third pixel is outside the region of interest if the first difference is greater than the second difference; and

comparing a third difference between the pixel value of the fourth pixel and the third value with a fourth difference between the pixel value of the fourth pixel and the fourth value, and determining that the fourth pixel is inside the region of interest if the third difference is smaller than or equal to the fourth difference, and determining that the fourth pixel is outside the region of interest if the third difference is greater than the fourth difference.

44. (New) The computer program embodied in a computer readable medium according to claim 40, wherein the plurality of cross-sectional images are full-color images of an organism.

45. (New) The computer program embodied in a computer readable medium according to claim 40, wherein the initial region is specified manually.

46. (New) The computer program embodied in a computer readable medium according to claim 40, wherein the initial region is extracted automatically through an image processing technology.

47. (New) The computer program embodied in a computer readable medium according to claim 40, further comprising selectively storing and displaying pixels that have been determined to be inside the region of interest.

48. (New) The computer program embodied in a computer readable medium according to claim 40, wherein the region of interest is three-dimensional.

49. (New) An image processing apparatus configured to extract a region of interest from a plurality of cross-sectional images of a sliced three-dimensional object, comprising:

an initial region setting unit configured to specify an initial region from a first cross-sectional image of the plurality of cross-sectional images;

a calculating unit configured to calculate a first value based on pixel values of each pixel inside the initial region, and a second value based on pixel values of each pixel outside the initial region;

a temporary region setting unit configured to select, as a first temporary region, a region that is at the same position as the initial region, from a second cross-sectional image corresponding to a second cross section next to a first cross section corresponding to the first cross-sectional image;

a pixel value unit configured to obtain a pixel value of a first pixel near a boundary of the first temporary region; and

a determining unit configured to determine whether the first pixel is inside the region of interest based on the pixel value of the first pixel, the first value, and the second value; wherein

the pixel value unit is further configured to obtain a pixel value of a second pixel outside the first temporary region and near the first pixel, if the first pixel is determined to be inside the region of interest, and to obtain a pixel value of a third pixel inside the first temporary region and near the first pixel, if the first pixel is determined to be outside the region of interest;

the determining unit is further configured to determine whether the second pixel or third pixel is inside the region of interest based on the pixel value of the second pixel or third pixel obtained, the first value, and the second value;

the temporary region setting unit is further configured to select, as a second temporary region, a region that is at the same position as the initial region including all pixels that have been determined to be inside the region of interest in the second cross-sectional image, from a third cross-sectional image corresponding to a third cross section next to the second cross section;

the pixel value unit is further configured to obtain a pixel value of a fourth pixel near the second temporary region;

the calculating unit is further configured to calculate a third value based on pixel values of each pixel inside the first temporary region and the initial region, and to calculate a fourth value based on pixel values of each pixel outside the first temporary region and the initial region; and

the determining unit is further configured to determine whether the fourth pixel is inside the region of interest based on the pixel value of the fourth pixel, the third value, and the fourth value.

50. (New) The apparatus according to claim 49, further comprising a storage unit configured to store flag information corresponding to each pixel of the region of interest.

51. (New) The apparatus according to claim 50, further comprising a display unit configured to display the region of interest based on the flag information.